■ 技術仕様

	ライカ DM4 P	ライカ DM2700 P	ライカ DM750 P
			
対物レボルバ	6穴(M25)、 センタリング機能付、 倍率読み取り	5穴 (M25)	4穴(M25)、 4本センタリング機能付
対物レンズ	HI Plan POL N Plan POL PL Fluotar POL	HI Plan POL N Plan POL PL Fluotar POL	HI Plan POL N Plan POL 油浸対物レンズ
視野数	25mm	25mm	20mm
コントラスト調整	電動 CCIC:色温度自動制御機能	手動	手動
透過光	偏光 オルソスコープ コノスコープ 明視野 位相差 微分干渉 暗視野	偏光 オルソスコープ コノスコープ 明視野 位相差 微分干渉 暗視野	偏光 オルソスコープ コノスコープ 明視野 位相差 暗視野
落射光	偏光 明視野 微分干渉 蛍光	偏光 明視野 微分干渉 蛍光 斜照明	偏光 明視野 斜照明
コノスコープ	光路内蔵 1.6x中間変倍(コーディング) ディスプレイによるユーザーガイダンス コノスコープモジュール (手動)	ベルトランレンズキューブ ベルトランレンズモジュール(ABモジュール) コノスコープモジュール(手動)	落射光軸上のベルトランレンズキューブ ベルトランレンズモジュール(ABモジュール) コノスコープモジュール
透過光照明装置	高出力LED 電動、内蔵照明マネージャー	高出力LED 手動、カラーコード(CDA)	内蔵LED照明 2時間後自動シャットオフ(機能オンオフ可) 手動、カラーコード(CDA)
落射光照明装置	電動、高輝度LED 内蔵照明マネージャー、 接眼レンズまたは カメラ観察用円形および 矩形視野絞り	手動、高輝度LED カラーコード(CDA)	手動、4分割LED 照明(BF、POL、斜照明) カラーコード(CDA)
コンデンサ	コンデンサヘッド電動切り替え、 7xコンデンサディスク、 ボラライザ	手動切り替え カラーコード(CDA)	手動切り替え カラーコード(CDA)
フォーカスドライブ	手動、 2速ギヤボックス 電動(オプション)	手動、高さ調節式、 フォーカスストップ、2速または3速ギヤボックス 電動(オプション)	手動、2 速ギヤボックス
サイズ、重量	333mm(W)x 460mm(D)x 480mm (H), 25kg	331mm(W)x 410mm(D)x 505mm(H), 18kg	220mm(W)x 396mm(D)x 456mm(H), 12kg

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※この製品のデザインおよび仕様は改良などのために予告なく変更する場合があります。

IDF0028_1905

From Eye to Insight

偏光顕微鏡

LEICA DM4 P, DM2700 P, DM750 P

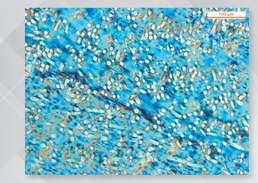
Design by Christophe Apothélozund WernerHölbl

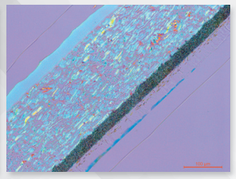
偏光顕微鏡

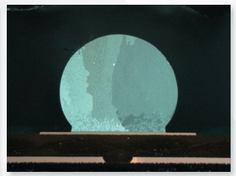
偏光顕微鏡は、複屈折物質の光学的性質を観察するため、
金属顕微鏡に偏光レンズや偏光板などを組み合わせた顕微鏡です。
岩石・鉱物はもちろん、ガラス、プラスチック、ポリマー、
医薬品やその原材料、織物および繊維などの観察・分析に最適です。
アプリケーションに応じて、3つのモデルから最適な機種を選択いただけます。

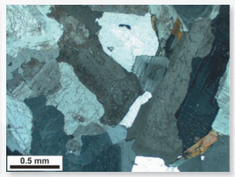
- ライカ DM4 P：電動制御モデル
- ライカ DM2700 P：マニュアルモデル
- ライカ DM750 P：実習用、ルーチン用モデル

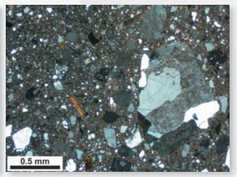
偏光観察事例


樹脂溶着


印刷紙


プリント基板 ハンダバンプ





岩石薄片
断層活動で破壊されていない花崗岩（左）と、断層活動を受けた鉱物（右）

ライカDM4 P 電動制御モデル

フル・セミ電動制御タイプの、システム偏光顕微鏡です。
オルソスコープ、コノスコープ観察に対応、豊富なアクセサリとの組み合わせで高度な偏光観察、測定が可能です。

- 対物レンズ情報読取り（コーディング）
- 倍率を変更しても明るさ、コントラストを自動調整
- 顕微鏡条件がすぐわかる液晶ディスプレイ
- 45°クリックストップ（オプション）、高精度360°回転ステージ
- 歪のない高い光学性能
- 高度な偏光性能を提供する、豊富なアクセサリ
- DIN 58879対応コンペンセータ

○いつも最適な観察条件

明視野から偏光観察などに切り替えたとき、また低倍での全体像確認も、高倍の詳細確認も、自動的に照明や絞り条件が調整され、適切な明るさ、コントラストで観察できます。
コンデンサヘッドはすべての対物レンズで光学的に調整されており、1.25×～100×までででスイングイン・アウトも自動制御です。

○すべての設定がひと目で

顕微鏡前面のディスプレイ上で、すべての顕微鏡設定を確認できます。

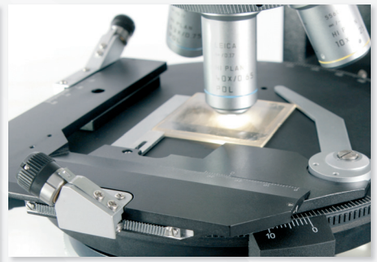
○ファンクションボタン

フォーカス、観察方法、光量などの操作、機能を左右のボタンに任意に割り当てることができます。

ライカDM2700 P マニュアルモデル

マニュアル操作タイプで、研究用途からルーティン検査まで使えるコンパクトな高性能偏光顕微鏡です。

- 5穴対物レボルバで、マクロからミクロまでダイナミックに観察
- 視野数は22と広く、広い範囲が一度に観察可能
- ライカユニークなUC-3D照明で、特別なアクセサリ必要なく、簡単に高コントラストでの観察が可能



○カラーコード式で素早く設定

対物レンズに対応する各絞りを同じ色でマーキング。色を合わせることで簡単に設定でき、作業のスピードアップを実現しました。

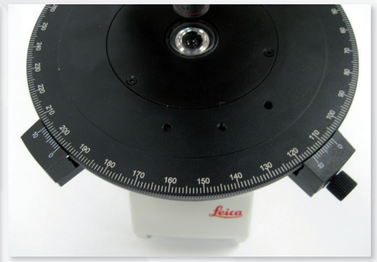
○フォーカスストップの設定

焦点調節範囲の下限ストップを設定することにより、対物レンズのフロントレンズと試料との衝突を防ぎます。

ライカDM750 P ルーチン用モデル

エントリーモデルながら、高い光学性能を提供し、本格的な偏光観察が可能な実習用偏光顕微鏡。

- 4穴対物レボルバ
- 視野数は20で、広い範囲が一度に観察可能
- 可搬性も考慮された優れたデザイン、ケーブルもコンパクトに収納可能



○持ち運びも便利、コンパクトデザイン

大学や研究機関の実習から検査用まで、コンパクトな偏光顕微鏡。

○ピンシャープな鮮明像

標準のケーラー視野絞りとマグネット固着式のブルーフィルターを備えており、鮮明な像を結びます。

○LED照明搭載

平均的な使用で20年以上の耐用年数。
未使用時自動で消灯する機能付です。

From Eye to Insight

Leica
MICROSYSTEMS

DM8000 M
DM12000 M

See More, Detect Faster –

High-throughput Inspection Systems

The New Class of Inspection Systems

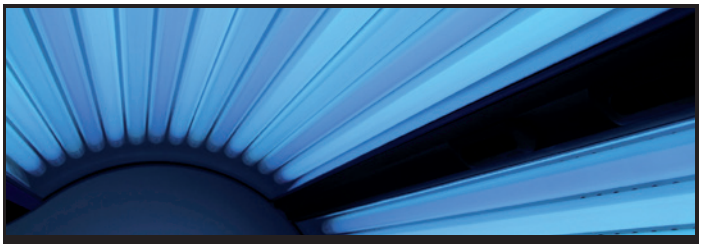
Inspection, process control and defect analysis of wafers or LCDs and TFTs has to be fast, accurate and ergonomic. Leica Microsystems has many years of experience in developing inspection systems for the semiconductor industry. Using this expertise, we have developed a totally new line of products for the inspection of 8 and 12 inch wafers.

The Leica DM8000 M and Leica DM12000 M optical inspection systems provide an **innovative yet cost-effective system solution** for mastering present and future inspection challenges with confidence.

More image information in less time
New optical features offered by the Leica DM8000 M such as the macro mode or the oblique UV illumination (OUV) not only improve resolving power but also speed up sample throughput.

Larger field for faster inspection

The Leica DM8000 M and the Leica DM12000 M feature an integrated macro mode, giving you four times the field of view of conventional scanning objectives. Seeing more means faster throughput.



Top resolution from every angle

The new Oblique UV (OUV) mode combines oblique illumination with UV light, which enables you to view a sample in top resolution from any angle – and enhances the accuracy of the inspection results.

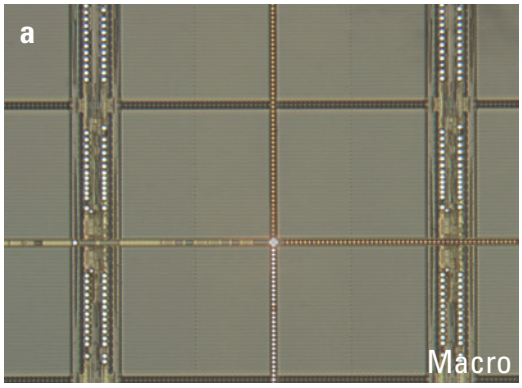
Higher quality due to ergonomic design

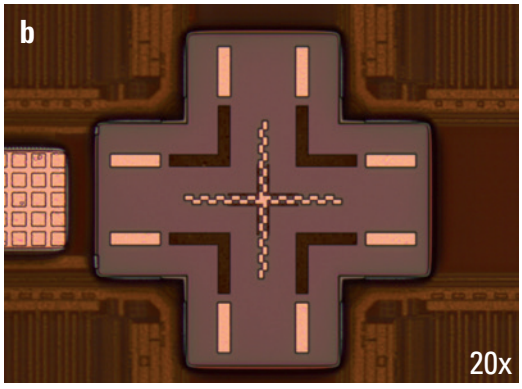
An ergonomic design enables users to work in comfort, enhancing their performance and ultimately improving the quality of their work. The Leica DM8000 M/DM12000 M is specifically designed to provide comfort for long hours at the microscope, and is intuitively operated and easy to adapt to different users' microscopy skill levels.

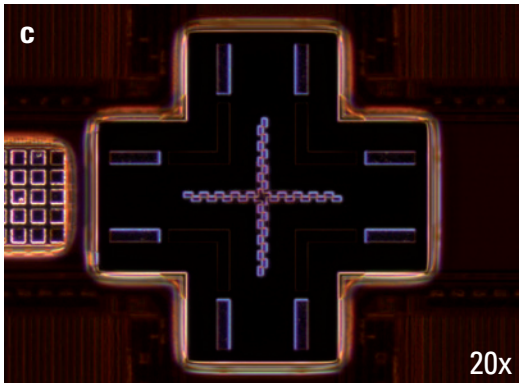
LED illumination for a cleaner environment

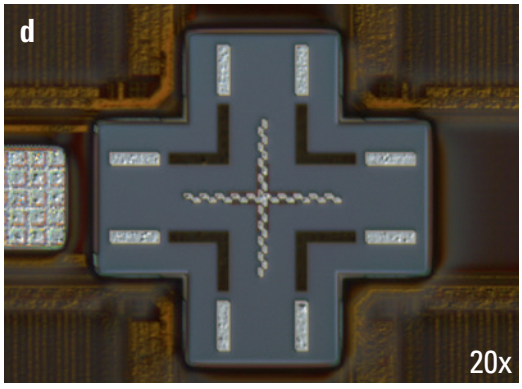
The LED illumination integrated in the Leica DM8000 M/DM12000 M optimizes the airflow and creates a cleaner cleanroom. With their long lifetimes and low power consumption, LEDs also have a lower cost of ownership.

From Macro to Micro – Defects Don't Stand a Chance









Accurate detection in all types of illumination: Quick macro mode scan **(a)**, particle detection in brightfield **(b)**, detection of micro scratches with in-depth darkfield **(c)**, looking for defects on transparent films with the DIC mode **(d)**. It takes less than a second to switch modes, and best of all, the microscope integrates a contrast and illumination manager to support users with little experience using the system.

See four times more

To detect macro defects, the Leica DM8000 M and DM12000 M have a micro/macro mode for rapid scanning of large components. The macro magnification captures an object field of approximately 40 mm – that's almost four times more than with conventional scanning objectives. **The entire scan area can be accurately scanned for possible defects in a fraction of the time.**

Change your perspective by keystroke

If you want to take a closer look, just press a single key to switch from macro to micro mode and inspect the defect in darkfield, brightfield or DIC. Press another key to switch to UV mode for even higher resolution or the OUV mode for a completely new visual experience. **Save valuable time.**

New contrasting techniques for ultra-high resolution

Oblique illumination is an indispensable tool for examining sides, edges or chipping, whereas UV light is useful for obtaining higher resolution. The unique OUV mode combines both techniques. **View the sample from all sides, in 3D and in highest resolution.**

In-depth darkfield contrast

The in-depth darkfield contrast reveals far more details of samples than conventional optical techniques. What's more, the large working distance protects samples from inadvertent damage during inspection.

For the Demanding Production Environment

Keep the environment clean

LED illumination is integrated with the Leica DM8000 M/ DM12000 M. You'll notice the effect of this smart design on your working environment: Without a lamphousing to get in the way, there is an optimal airflow around the microscope. A clean solution for the cleanroom.

The powerful LEDs have an extremely long lifetime yet extremely low power consumption. There is no need for lamp change, and there are no downtimes for servicing. **Help the environment while saving money and increasing productivity at the same time.**

Patented for continuous operation
The motorized objective nosepiece is encapsulated and, like the entire system, designed for the most demanding cleanroom requirements. This is a solution that keeps the microscope in service for years, however tough the conditions.

Effective protection of the samples
The focus stop works both mechanically and electronically to protect samples from inadvertent damage. With the large vertical adjustment range of the focus and individually extendable working distance, **every sample height is accommodated**, from microelectronic components to polished metal sections, composites or minerals.

System integration means single-source supply
With the Leica DM8000 M/DM12000 M, you have a complete system: the microscope, camera and the Leica Application Suite (LAS) software are perfectly matched.

Or upgrade the Leica DM8000 M/DM12000 M to an inspection or review system by choosing a wafer loader, matching accessories such as vacuum wafer chucks, and by installing inspection software or film thickness measurement software.

The objective nosepiece of the Leica DM8000 M/DM12000 M is designed to meet the most demanding cleanroom specifications, also.

Upgrade to an inspection or review system with wafer loader and customized inspection software

Perfect Ergonomics and Convenience

Easy to use, even in the cleanroom
Designed to the highest ergonomic standards, the controls are specifically intended for the more difficult conditions in the cleanroom.

Ergonomics in perfection – for consistent, reliable results
The tube and focus knobs can be optimally adjusted to specific body size to reduce user fatigue.

Ergonomics means higher quality

It has been proven that ergonomically-designed workplaces help increase productivity and enhance work quality. Adaptable to any user with its individually adjustable Ergotube and height-adjustable focus knobs, the Leica DM8000 M/DM12000 M is ideal for routine inspection and other applications.

All controls are easy to reach, so that users don't have to take their eyes and hands away from the microscope to switch to a different contrast technique or illumination. The camera's shutter release key is integrated with the microscope stand, also. **Convenient for the user and saves time.**

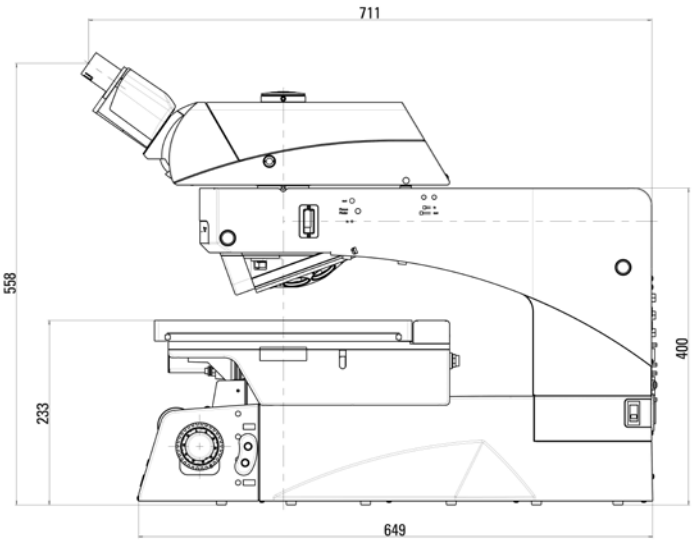
Helps prevent user error
Even for users with no microscope skills, the Leica DM8000 M/DM12000 M is easy to use. The controls are preassigned using the memory function, **reducing the risk of operation errors.**

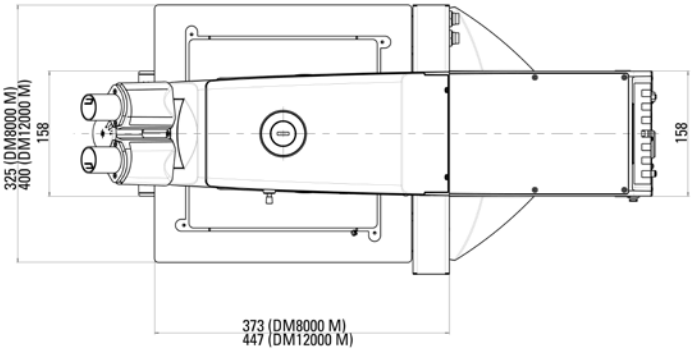
Intelligent support
The contrast can be selected at the press of a button with the integrated contrast manager – the relevant parameters are adjusted accordingly. The integrated illumination manager automatically adapts the illumination to the chosen objective. Ultra-easy operation helps avoid errors and saves time.

For the inspection of strongly reflecting surfaces such as blank wafers, the focus finder is an intelligent feature for quickly focusing on the detail of interest.

Inspection tasks can be clearly and simply defined by different user authorizations where several users with different skill levels work at the same microscope.

Technical Data





Systems	Leica DM8000 M	Leica DM12000 M
Optical system	Leica HC optics (optical system corrected to infinity)	
Viewing tube	Trinocular Ergotube with upright and unreversed image Switching positions (eyepiece/camera): 100/0 and 0/100 100/0 and 50/50	
Macro imaging	Super widefield overview image with up to 40 mm scan field on the sample	
Illumination system	– Full LED incident light illumination; viewing techniques: Brightfield, darkfield, DIC, qualitative POL, oblique illumination, UV, OUV – Full LED transmitted light illumination; viewing techniques: Brightfield, qualitative POL	
Status feedback	Status indicator on front Service interval indicator (on back of instrument)	
Operation support	Integrated contrast manager Integrated illumination manager	
Objective nosepiece	Motorized, brightfield/darkfield objectives (M32), 6-position	
Microscope stages	Manual inspection stage 8 x 8"; 202 x 202 mm travel range, integrated rapid adjustment; for incident and transmitted light techniques Scanning stage 8 x 8" ; 202 x 202 mm travel range, motorized, 4 mm pitch; for incident and transmitted light techniques	Manual inspection stage 12 x 12" ; 302 x 302 mm travel range, integrated rapid adjustment; for incident and transmitted light techniques Scanning stage 12 x 12" ; 302 x 302 mm travel range, motorized, 4 mm pitch; for incident and transmitted light techniques
Control units	Leica SmartMove, x,y,z control with 4 freely programmable function keys Leica STP6000 SmartTouch, x,y,z control with 4 freely programmable function keys	
Focus	Heavy-duty manual 2-stage focus, coarse and fine mode; 35 mm travel range; height-adjustable focus knobs Precision 3-stage focus with coarse, fine and super fine mode; 35 mm adjustment range; height-adjustable focus knobs Motorized 2-stage focus; 35 mm travel range; high reproducibility; parfocality compensation	
Electrical system	Supply voltage: 100–120/220–240 V AC, 50/60 Hz	
Weight	approx. 41 kg (of which microscope approx. 36,1 kg)	approx. 52 kg (of which microscope approx. 36,5 kg)
Ambient conditions	For use in industrial environments with EMC (Class A threshold). If used in a protected environment, instruments may influence each other Ambient temperature: 15°C – 35°C Relative humidity: 80% for temperatures up to 33°C (without condensation) Voltage fluctuations: +/- 10% Over-voltage category: II according to IEC60664 Contamination class: 2 according to IEC60664	

Can be delivered in cleanroom packaging (two-layer packaging) on request.

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